

Remarks

This amendment is responsive to the Office Action mailed May 5, 2003 in connection with the above-identified patent application. In that Action, claims 1-28 were rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,055,515 to Consentino, et al.

Apparently, the Examiner interpreted the pending claims in the instant application to include teachings of the multi-path browsing system found in the Consentino, et al. '515 patent. In her remarks, the Examiner took the position that "Consentino, et al. expressly discloses a system having graphic user interface... to facilitate building, transforming, maintaining and using multiple inheritance taxonomy, such as a product catalog database... ." In addition, the Examiner gave an example of the manner in which she is interpreting the teachings of the Consentino, et al. '515 patent. The Examiner gave the example of "a user of the system clicks the "application" lattice, the system receives the signal, and in response to the user's input signal, transforms the content of source from "Application" lattice (a configurable node label) to a cascaded display with a plurality of sub-nodes in a lineage fashion."

First, with regard to the Examiner's position that the Consentino, et al. '515 patent expressly discloses a system having a graphic user interface to facilitate building, transforming, maintaining and using multiple inheritance taxonomy, the applicant respectfully disagrees. More particularly, the Examiner cites column 4, lines 40-54 of the Consentino, et al. '515 patent in support of this position. However, upon careful reading this portion of that patent, it is apparent that the Examiner has added the word "transforming" into the list of capabilities of the system described there. It is clear to the applicant that the Examiner has taken some liberties here. The word

"transforming" is not found in the patent at the cite noted by the Examiner in the record.

Applicant respectfully directs the Examiner's attention to the bottom of page 2 of the present application whereat it is indicated that according to the present invention, data stored on a data storage device connected to a computer is navigated. In response to receiving user input, a target object in an information catalog is selected. Then, information about a source from which the target object was derived is provided. The present application is directed to a transformation lineage model. "Lineage" refers to the source of the data or the modification that resulted in the current state of the data. (Page 5, lines 10, 11). At page 9, line 26 in the specification of the present application, it is indicated that the transformation lineage model (TLM) system 118 allows users to select any data that they want to access, which can be anywhere on the tree. If the user's have questions about how the data they are looking at was derived, the users can navigate the information catalog via the tree structure to see any "transformations" that were applied to generate the data. At the top of page 10 it is described that the transformation lineage model system 118 allows users to drill from the target warehouse data back to the original source data and learn how the target warehouse data was derived. An example of a "transformation producing function" is given at the bottom of page 11 and is described in connection with Figure 6 of the instant application. The transformation producing function described there transforms data by summing values. Other transformation producing functions are possible as well.

Turning back to the Examiner's comment in the record that the Consentino, et al. '515 patent expressly discloses a system having a graphic user interface to facilitate building, transforming, maintaining and using multiple inheritance

taxonomy, it is clear that no such transformation capabilities exist in the hierarchical tree structure described there.

In addition to the above, the Examiner presents in the record on page 6 of the Office Action an attempt to read the pending claims on the Consentino, et al. '515 patent. The Examiner indicates that a user of the system clicks on the "application" lattice which is a node of the system. In response to the user's input, the system opens up a sub-lattice node with node labels in a cascaded view.

It is respectfully submitted that the Examiner has misconstrued or misunderstands the teachings of the Consentino, et al. '515 patent and/or has misconstrued the pending claims or misunderstands the present application. In her example, the "target object" is the "Application" node 140 and the source data is a plurality of sub-nodes including "Accountancy" 145. It is inconceivable to the applicant how a transformation of the source data ("Accountancy" 145 in the Examiner's example) can derive the target object "Application" 140 in the Examiner's example. It is clear to those skilled in the art that both the node "Application" 140 as well as the sub-node "Accountancy" 145 merely represent data but are not the data itself.

In independent claim 1 of the present application, a target object in an information catalog is selected in response to receiving a user input. Information is provided about source data from which the target object was derived via a transformation performed on the source data to derive said target object. Again, in the Examiner's example, neither the node "Application" 140 nor the sub-node "Accountancy" 145 is data, but rather merely represents data.

Applicant respectfully submits that the Consentino, et al. patent does not teach, suggest, or fairly disclose any aspects of a transformation lineage model and, more particularly, does not suggest methods, articles of

manufacture, or apparatus for navigating data in the manner recited in the pending claims as amended herein.

As previously argued, U.S. Patent No. 6,055,515 to Consentino, et al. does not teach or suggest a transformation relationship between a target and an object but only shows relationships without transformations between two objects. Consentino, et al. does not teach or suggest transformations as a link between a target and an object. A transformation is an algorithm applied to a source to transform the source into an object of a different type. The present specification at page 5, at line 10 refers to the relationship between the target and object as "lineage" which refers to the source of the data or the modification that resulted in the current state of the data.

In Consentino, et al., there is no modification that results in a current state of the data. Consentino, et al. simply shows a hierarchal lattice-type relationship and methods and means to navigate the lattice-type architecture. There is no notion of transformation or lineage in the Consentino, et al. patent.

In the present application, one can navigate the data by focusing on a target and then determining what transformation was applied to generate the target. From the transformation itself, one can see what source data was used by/in the transformation.

Independent claims 19 and 27 pending in the instant application include limitations not found in the Consentino, et al. including the limitation of the target object being derived from one or more sources of data via one or more transformations performed on said one or more sources of data.

Again, the Consentino, et al. '515 patent simply shows a hierarchical lattice-type relationship between objects which are not produced by transformations of other objects.

The Present Application:

The present system provides a mechanism which provides users with the ability to determine the lineage of warehouse data by traversing a transformation model. The subject system provides users with a tree structure that represents the data the users wish to view. The system allows users to select any data that they want to access which can be anywhere on the tree. If the users have questions about how the data they are looking at was derived, the users can navigate the information catalog via the tree structure to see any "transformations" that were applied to generate the data. From this point, the users can continue with their data analysis or continue to follow the lineage by looking at the metadata about the source data. The present system allows users to drill from the target warehouse data back to the original source data and learn how the target warehouse data was derived.

Accordingly, the present system is especially advantageous in that it is used to describe a process applied to data. More particularly, the present system describes the transformation of data as it moves in a data warehouse. Moreover, the system defines the lineage of data. That is, the system indicates to the user what the sources for the warehouse were and/or the modification(s) that resulted in the current state of the data.

U.S. 6,055,515 to Consentino, et al.:

Consentino et al. disclose a user interface for a database system which combines a hierarchical structure with the ability to navigate lattice data structures. As Consentino et al. point out, the use of a display tree is familiar to computer users for navigating through tree-like data structures, such as computer directory and file structures. However, the tree structure is inadequate for more complex organizational structures because there is only

a single navigation path through the tree to a given object. For example, for an electronic catalog, providing a single navigation path to a given product would be extremely restrictive.

Lattice data structures are also known which provide a multipath organization. However, lattice data structures are difficult to present graphically and difficult to navigate. The system of Consentino et al. provides a multipath browsing system which uses the familiar tree control. A number of features are added to the tree view to provide this multi-path capability. First, a multiple-inheritance taxonomy is used. This means, for example, that a user who was shopping for sunglasses could navigate to a pair of sunglasses in an online catalog data through many categories, such as beach wear, sportswear, or eye care. See column 6, lines 22-25.

Additionally, since the data is structured as a lattice with multiple paths to different objects, "floating menus" are used to display other "parent" or "ancestor" nodes which lead to a given node. For example, a tree hierarchy is used to display one possible path. A secondary mouse button or "right click" can then be used to bring up a floating menu which displays the parent nodes or super nodes of the node. If one of the other parent nodes is selected, the tree menu then expands to show the new path, with the node highlighted. See column 7, lines 28-47.

Consentino et al. also use descriptive node labels. For example, a node label in an electronic catalog might be the product number. However, the product number alone would not typically enough to let the user know what the product is. Therefore, the Consentino et al. system adds, in addition to the product number, an attribute value of that product, such as the product name. See column 7, lines 48-58. This provides more useful information since the product number and

its name are displayed at the same time. See column 8, lines 5-8; Figure 5, reference numerals 171 and 175.

All Pending Claims are Patentably Distinct Over Consentino, et al. '515:

Applicant respectfully submits that the Consentino, et al. '515 is not an anticipatory reference under 35 U.S.C. § 102 because it does not disclose each and every limitation of the pending claims. More particularly, Consentino, et al. fail to disclose each element of the rejected claims for the following reasons.

Claims 1-18 distinguish patentably over Consentino et al. Each of these rejected claims require a target object which has been derived from source data and, further, requires providing information about the source data from which the target object was derived. On the contrary, the Consentino et al. patent contains no teaching that information about source data is provided when the target object derived from that data source is selected. Consentino, et al. only provide a database system which combines a hierarchal structure with the ability to navigate lattice data structure.

Claims 3, 4, 9, 10, 15, and 16 are further distinguished in that they require providing information about a transformation performed on the source data to derive the target object. Consentino et al. fail to teach providing such transformation information.

Claims 4, 10, and 16 are further distinguished in that in that they require identifying a function used to transform the source data. No teaching of identifying such a transformation producing function is disclosed by Consentino et al.

Claims 5, 6, 11, 12, 17, and 18 are further distinguished in that they require providing lineage information which identifies the source of data used in

deriving the target object. No such lineage information is disclosed by Consentino et al.

Claims 6, 12, and 18 are further distinguished in that they require maintaining transformation models which maintain information about the source of data used in deriving the target object.

Because Consentino et al. fail to disclose each and every limitation of the claims, it is respectfully submitted that a prima facie case of lack of novelty has not been established. Therefore, withdrawal of the rejection of claims 1-8 under 35 U.S.C. § 102(b) is respectfully requested.

Claims 19-26 are distinguished in that they are directed to a method of navigating data in a data warehouse stored in a data storage device connected to a computer comprising receiver user input selecting a target object, said target object derived from one or more sources of data via one or more transformations performed on said one or more sources of data; selecting the target object in response to receiving said user input; and providing information about at least one of said one or more sources of data. No teaching of target objects derived from one or more sources of data via one or more transformations performed on the one or more sources of data is disclosed by Consentino, et al.

Independent claim 27 is distinguished in that it provides a computer-readable medium for performing steps for navigating data in a data warehouse comprising receiving user input selecting a target object, the target object derived from one or more sources of data via one or more transformations performed on the one or more sources of data; selecting the target object in response to receiving said user input; and providing information about at least one of said one or more sources of data. No such target objects derived from one or more sources of data via one or more transformations performed on said one or more sources of data is disclosed by Consentino, et al.

Lastly, independent claim 28 is distinguished in that a system is provided for navigating data in a data warehouse comprising a plurality of objects including a target object, the target object derived via one or more transformations from one or more sources of data; a transformation lineage system which stores transformation lineage information for the target object, said transformation lineage information associating the target object with said one or more transformations and identifying said one or more data sources; a user interface for receiving user input for selecting one of the plurality of objects; and the user interface being configured to display said transformation lineage information in response to receiving user input selecting said target object. No such target objects derived via one or more transformations or a transformation lineage system is disclosed by Consentino, et al.

CONCLUSION

Applicant respectfully submits that all pending claims are patentably distinct and unobvious over the reference of record.


It is respectfully requested that, in the event this amendment does not place the application in condition for allowance, the Examiner contact applicant's representative identified below to arrange a telephonic Examiner's Interview to advance prosecution.

Allowance of all pending claims and early notice to that effect is respectfully requested.

Respectfully submitted,

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